Medical myth: A digital rectal examination should be performed on all individuals with possible appendicitis

The digital rectal examination is uncomfortable, and it can be emotionally and physically traumatic, especially in children. Dickson and Mackinlay found that rectal examinations induced severe discomfort, defined as major crying and screaming, in nearly one third of all children presenting with possible appendicitis.[1] Mild discomfort, defined as facial grimacing or crying, was seen in another third of this group of patients.

The routine use of digital rectal examination has long been considered a necessary component in the evaluation of patients in whom appendicitis is suspected. This traditional teaching is still supported in most surgical textbooks. The 19th edition of *Cope's Early Diagnosis of the Acute Abdomen* states that the rectal examination is extremely important and informative because it can elicit tenderness from an inflamed and swollen appendix.[2] Contrary to this traditional teaching, results of several studies suggest that subjecting patients to this unpleasant examination will likely add nothing to the diagnosis or management of the patient suspected of having appendicitis.

In 1979, Bonello and Abrams performed a limited retrospective analysis of rectal examinations in 495 patients undergoing surgery for possible appendicitis.[3] The results of the rectal examinations were positive in only 46% (228/495) of those patients with confirmed appendicitis. Fifty-three percent (262/495) of patients without appendicitis had false-positive results. The authors concluded that the rectal examination does not confirm or rule out the diagnosis of acute appendicitis.

Dickson and Mackinlay prospectively evaluated children 14 years of age or younger who were admitted to the hospital with suspected acute appendicitis.[1] A positive rectal examination was defined as tenderness of the right or anterior rectum, the presence of swelling, or the presence of a mass. Again, the rectal examination was insensitive; only one half of the patients with documented acute appendicitis had positive results of rectal examinations. Furthermore, it was concluded that in 90% of cases, the diagnosis could have been rendered on the basis of the history and results of the abdominal examination alone. The authors state that rectal examination should not be performed in children with possible appendicitis unless the diagnosis remains uncertain after taking the history and examining the abdomen.

The largest study of the use of rectal examinations in patients with possible appendicitis was performed by Dixon and colleagues in 1991.[4] Of 1204 patients, ranging in age from 7 to 87 years, with a chief complaint of right lower quadrant pain, 85% (1024/1204) underwent a rectal examination. The treating physicians were asked to render their diagnosis and disposition plan after taking a history and conducting a physical examination, but before they did a rectal examination. The same physicians were asked to give their diagnosis and disposition after the rectal

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examination. The rectal examination made no difference in the management plan for any of the patients. The data suggested that physical signs, most importantly abdominal rigidity, were better predictors of appendicitis. The finding of right-sided rectal tenderness was ultimately neither sensitive nor specific for the disease. The authors concluded that a rectal examination is not necessary in patients with right lower quadrant abdominal pain and physical signs.

Scholer and colleagues published a limited retrospective study of rectal examinations in children ranging in age from 2 to 12 years presenting with abdominal pain.[5] Of 1140 patients, only 5% (56/1140) underwent a rectal examination. The examination was only deemed contributory—undefined in the study—in 12 of the 56 patients (21%). Only 25% (2/8) of patients with appendicitis had lateral wall tenderness at the time of the examination. It is unclear from the study if this finding added to the ultimate diagnosis or management of the patients.

The results of the studies just described suggest that the rectal examination should not be considered part of the *routine* work-up of right lower quadrant abdominal pain because it has little utility in guiding the diagnosis or management of possible appendicitis; it is uncomfortable; and, especially in children, it may be traumatic and poorly tolerated. The rectal examination may be deemed necessary when alternative diagnoses are likely. The examination should then be used judiciously to rule out specific conditions, including gastrointestinal bleeding, prostatitis, a mass, or perirectal abscess.

As stated by Jesudason and colleagues, the rectal examination should be considered an "investigation" rather than part of a routine clinical assessment.[6] It should be performed only when the results will change the management plan.

References

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